Listing of Claims:

1. (Currently Amended) An optical code reading system for imaging and decoding an optical code, said optical code reading system comprising:

an optical code reader comprising an image sensor for imaging said optical code and generating at least one data signal representative of ~~at least one~~ a parameter of at least one wavelength component of said optical code impinging onto said image sensor, and at least one lens positioned for movement along an optical axis of said optical code reader, wherein each of said at least one data signal represents a particular color;

a signal processor comprising means for performing an analysis utilizing principles of axial chromatic aberration and ~~at least one~~ a value indicative of the parameter of a single wavelength component of the at least one wavelength component associated with a single data signal of the at least one data signal representing one of the colors, and means for determining an amount of movement of said at least one lens for adjusting a focus quality of an image corresponding to said optical code and impinged onto said image sensor, such that said amount of movement is determined based on the analysis ~~determinative by data signals representing one or more colors, wherein said analysis is performed while maintaining amplitude values respectively corresponding to a first, a second and a third wavelength component of the at least one wavelength component at substantially the same value~~;

an actuator operatively coupled to said at least one lens for moving said at least one lens along said optical axis of said optical code reader by at least the determined amount for adjusting the focus quality of said image; and

a decoder for decoding data encoded by said image.

2. (Currently Amended) The optical code reading system according to Claim 1, wherein said processor further comprises means for determining a distance to said optical target by accessing at least one data structure and correlating the ~~at least one~~ value indicative of the parameter of the ~~at least one~~ single wavelength component to said distance.

3. (Original) The optical code reading system according to Claim 1, further comprising a feedback system, including the image sensor and the signal processor, for repeatedly generating the at least one data signal and performing said analysis, until said signal processor determines the data is decodeable by said decoder.

4. (Original) The optical code reading system according to Claim 3, further comprising a controller for controlling the actuation of said actuator.

5. (Original) The optical code reading system according to Claim 1, further comprising an illumination apparatus for illuminating a field of view, said field of view including the optical code.

6. (Original) The optical code reading system according to Claim 1, wherein said at least one wavelength component is selected from the group consisting of blue, green and red wavelength components.

7. (Cancelled)

8. (Currently Amended) The optical code reading system according to Claim 1, wherein said means for performing said analysis comprises means for performing the steps of:

determining a difference ~~by subtracting~~ between said ~~at least one~~ value ~~from~~ and a value stored within a memory~~, or by subtracting said stored value from said at least one value and taking an absolute value of said difference~~; and

determining whether the difference necessitates movement of said at least one lens along said optical axis, wherein said amount of movement is determined if the difference necessitates movement of said at least one lens.

9. (Currently Amended) A method for imaging and decoding an optical code, said method comprising the steps of:

imaging said optical code by an image sensor and generating at least one data signal representative of ~~at least one~~ a parameter of at least one wavelength component of said optical code impinging onto said image sensor, wherein each of said at least one data signal represents a particular color;

performing an analysis utilizing principles of axial chromatic aberration and ~~at least one~~ a value indicative of the parameter of a single wavelength component of the at least one wavelength component associated with a single data signal of the at least one data signal representing one of the colors~~, wherein said analysis is performed while maintaining amplitude values respectively corresponding to a first, a second and a third wavelength component of the at least one wavelength component at substantially the same value~~;

determining an amount of movement of at least one lens based on said analysis for adjusting a focus quality of an image corresponding to said optical code and impinged onto

said image sensor, such that said amount of movement is determined based on the analysis ~~determinative by data signals representing one or more colors~~;

moving said at least one lens by at least the determined amount for adjusting the focus quality of said image; and

decoding data encoded by said image.

10. (Currently Amended) The method according to Claim 9, further comprising the step of determining a distance to said optical target by accessing at least one data structure and correlating the ~~at least one~~ value indicative of the parameter of the ~~at least one~~ single wavelength component to said distance.

11. (Original) The method according to Claim 9, further comprising the step of repeatedly generating the at least one data signal and performing said analysis, until said data is decodeable by said decoder.

12. (Original) The method according to Claim 9, wherein said at least one wavelength component is selected from the group consisting of blue, green and red wavelength components.

13. (Cancelled)

14. (Currently Amended) The method according to Claim 9, wherein said step of performing an analysis comprises the steps of:

determining a difference ~~by subtracting~~ between said ~~at least one~~ value ~~from~~ and a value stored within a memory~~, or by subtracting said stored value from said at least one value and taking an absolute value of said difference~~; and

determining whether the difference necessitates movement of said at least one lens.

15. (Currently Amended) A system for adjusting a focus quality of an image impinging onto an image sensor and for decoding data encoded by said image, said system comprising:

means for generating at least one data signal representative of a parameter of at least one wavelength component of said image, wherein each of said at least one data signal represents a particular color;

means for performing an analysis utilizing principles of axial chromatic aberration and ~~at least one~~ a value indicative of the parameter of a single wavelength component of the at least one wavelength component associated with a single data signal of the at least one data signal representing one of the colors~~, wherein said analysis is performed while maintaining amplitude values respectively corresponding to a first, a second and a third wavelength component of the at least one wavelength component at substantially the same value~~;

an actuator for moving at least one lens in accordance with the analysis for adjusting the focus quality of said image, such that an amount of movement of said at least one lens is determined based on the analysis ~~determinative by data signals representing one or more colors~~; and

a decoder for decoding data encoded by said image.

16. (Currently Amended) The system according to Claim 15, wherein said means for performing an analysis comprises means for determining a distance to an optical target corresponding to said image by accessing at least one data structure and correlating the ~~at least one~~ value indicative of the parameter of the ~~at least one~~ single wavelength component to said distance.

17. (Original) The system according to Claim 15, wherein said at least one wavelength component is selected from the group consisting of blue, green and red wavelength components.

18. (Cancelled)

19. (Currently Amended) The system according to Claim 15, wherein said means for performing an analysis comprises:

means for determining a difference ~~by subtracting~~ between said ~~at least one~~ value ~~from~~ and a value stored within a memory~~, or by subtracting said stored value from said at least one value and taking an absolute value of said difference~~; and

means for determining whether the difference necessitates movement of said at least one lens.

20. (Currently Amended) A method for adjusting a focus quality of an image impinging onto an image sensor and for decoding data encoded by said image, said method comprising the steps of:

generating at least one data signal representative of a parameter of at least one wavelength component of said image, wherein each of said at least one data signal represents a particular color;

performing an analysis utilizing principles of axial chromatic aberration and ~~at least one~~ a value indicative of the parameter of a single wavelength component of the at least one wavelength component associated with a single data signal of the at least one data signal representing one of the colors~~, wherein said analysis is performed while maintaining amplitude values respectively corresponding to a first, a second and a third wavelength component of the at least one wavelength component at substantially the same value~~;

moving at least one lens in accordance with the analysis for adjusting the focus quality of said image, such that an amount of movement of said at least one lens is ~~determinative by data signals representing one or more colors~~ determined based on the analysis; and

decoding data encoded by said image.

21. (Currently Amended) The method according to Claim 20, wherein said step of performing an analysis comprises the step of determining a distance to an optical target corresponding to said image by accessing at least one data structure and correlating the ~~at least one~~ value indicative of the parameter of the ~~at least one~~ single wavelength component to said distance.

22. (Original) The method according to Claim 20, wherein said at least one wavelength component is selected from the group consisting of blue, green and red wavelength components.

23. (Cancelled)

24. (Currently Amended) The method according to Claim 20, wherein said step of performing an analysis comprises the steps of:

determining a difference ~~by subtracting~~ between said ~~at least one~~ value ~~from~~ and a value stored within a memory~~, or by subtracting said stored value from said at least one value and taking an absolute value of said difference~~; and

determining whether the difference necessitates movement of said at least one lens.

25. (Currently Amended) A method for determining a focus discriminator for a focusing system, said method comprising the steps of:

generating a ~~first~~ data signal representative of a parameter of a ~~first~~ single wavelength component of an image impinged onto an image sensor of said focusing system;

~~generating a second data signal representative of a parameter of a second wavelength component of said image;~~

~~generating a third data signal representative of a parameter of a third wavelength component of said image;~~

performing an analysis by ~~subtracting~~ determining a difference between a value indicative of the parameter of the ~~first~~ wavelength component and a value stored within a memory ~~from a value indicative of the parameter of the second wavelength component to obtain a difference~~, wherein said difference is a focus discriminator indicating whether said image requires focusing by said focusing system~~, and wherein said analysis is performed while maintaining amplitude values respectively corresponding to the first, the second and the third data signals at substantially the same value~~; and

decoding data encoded by said image.

26. (Currently Amended) The method according to Claim 25, wherein said method utilizes principles of axial chromatic aberration, wherein a ~~first~~ wavelength having said first wavelength component has an optimum focus at a first focus plane and said stored value is representative of the maximum intensity or magnitude of the wavelength ~~a second wavelength having said second wavelength component has an optimum focus at a second focus plane, and wherein said first and second focus planes are different due to axial chromatic aberration~~.

27. (Cancelled)

28. (Cancelled)

29. (New) The optical code reading system according to Claim 8, wherein the means for performing the analysis further comprises means for performing the step of:

determining a direction of movement of the at least one lens when the

determination is positive that the difference necessitates movement of the at least one lens along the optical axis, the determining a direction of movement comprising:

first determining the amount of movement to be a minute movement and selecting a first direction of movement from a first and second direction along the optical axis;

determining a new difference between a new value associated with imaging the optical code after the at least one lens was moved along the optical axis by the minute amount in the first direction and the stored value;

comparing the previously determined difference between the value and the stored value to the new determined difference;

when the new determined difference is bigger than the previously determined difference, determining that the direction of movement from an original position of the at least one lens is the second direction; and

when the new determined difference is smaller than the previously determined difference, determining the direction of movement from the original position of the at least one lens is the first direction.

30. (New) The method according to Claim 14, wherein when the determination is positive that the difference necessitates movement of the at least one lens, the step of performing an analysis further comprises the step of determining a direction of movement of the at least one lens comprising the steps of:

first determining the amount of movement to be a minute movement and selecting a first direction of movement from a first and second direction;

determining a new difference between a new value associated with imaging the optical code after the at least one lens was moved by the minute amount in the first direction and the stored value;

comparing the previously determined difference between the value and the stored value to the new determined difference,

when the new determined difference is bigger than the previously determined difference, determining that the direction of movement from an original position of the at least one lens is the second direction; and

when the new determined difference is smaller than the previously determined difference, determining the direction of movement from the original position of the at least one lens is the first direction.

31. (New) The system for adjusting focus quality according to Claim 19, wherein the means for performing the analysis further comprises means for performing the step of:

determining a direction of movement of the at least one lens when the determination is positive that the difference necessitates movement of the at least one lens, the determining a direction of movement comprising:

first determining the amount of movement to be a minute movement and selecting a first direction of movement from a first and second direction;

determining a new difference between a new value associated with an image impinged on the image sensor after the at least one lens was moved by the minute amount in the first direction and the stored value;

comparing the previously determined difference between the value and the stored value to the new determined difference;

when the new determined difference is bigger than the previously determined difference, determining that the direction of movement from an original position of the at least one lens is the second direction; and

when the new determined difference is smaller than the previously determined difference, determining the direction of movement from the original position of the at least one lens is the first direction.

32. (New) The method according to Claim 24, wherein when the determination is positive that the difference necessitates movement of the at least one lens, the step of performing an analysis further comprises the step of determining a direction of movement of the at least one lens comprising the steps of:

first determining the amount of movement to be a minute movement and selecting a first direction of movement from a first and second direction;

determining a new difference between a new value associated with an image impinged onto the image sensor of the focusing system after the at least one lens was moved by the minute amount in the first direction and the stored value;

comparing the previously determined difference between the value and the stored value to the new determined difference,

when the new determined difference is bigger than the previously determined difference, determining that the direction of movement from an original position of the at least one lens is the second direction; and

when the new determined difference is smaller than the previously determined difference, determining the direction of movement from the original position of the at least one lens is the first direction.

33. (New) The method according to Claim 25, determining a direction of movement of at least one lens of the focusing system for focusing the at least one lens, the determining a direction of movement comprising:

first moving the at least one lens a minute amount in a first direction selected from a first and second direction;

determining a new difference between a new value associated with an image impinged onto the image sensor after the at least one lens was moved by the minute amount in the first direction;

comparing the previously determined difference between the value and the stored value to the new determined difference;

when the new determined difference is bigger than the previously determined difference, determining that the direction of movement from an original position of the at least one lens is the second direction; and

when the new determined difference is smaller than the previously determined difference, determining the direction of movement from the original position of the at least one lens is the first direction.